
CIRM Graduate Student Training in Stem Cell Sciences in the Stem Cell Technology and Lab Management Emphasis of the MS Biotechnology Program

Grant Award Details

CIRM Graduate Student Training in Stem Cell Sciences in the Stem Cell Technology and Lab Management Emphasis of the MS Biotechnology Program

Grant Type: Bridges

Grant Number: EDUC2-12695

Project Objective: This program provides a stem cell technology and laboratory management emphasis within a MS Biotechnology degree program. Prior to 12 month internships, trainees complete coursework in bioethics, biotechnology law and regulation, clinical trials and quality assurance, molecular cell biology, molecular techniques, bioinformatics, genomics and proteomics, project management. Structured patient engagement and Community Outreach activities are included.

Investigator:

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| Name: | Nitika Parmar |
| Institution: | California State University, Channel Islands |
| Type: | PI |

Award Value: \$3,606,500

Status: Active

Grant Application Details

Application Title: CIRM Graduate Student Training in Stem Cell Sciences in the Stem Cell Technology and Lab Management Emphasis of the MS Biotechnology Program

Public Abstract:

CSUCI has led the way in developing the most successful professional biotechnology master's program in the California State University system, as well as an innovative Master of Science (MS) Biotechnology and MBA dual degree program. The degree structure permits students to custom-design their curriculum under an advisor's guidance, making the degree especially relevant for students employed in today's diverse biotechnology workplace. Together, these programs have a current enrollment of regionally and demographically diverse students. The applicant campus has graduated 428 MS students; all are either employed in the biotech industry, academic sector or pursuing doctoral degrees. In the past six years, 122 students have been extensively trained in stem cell sciences within the Stem Cell Technology and Lab Management (SCTLM) emphasis as a result of a robust curriculum and partnerships with 16 different institutions providing year-long internship opportunities to CI students. With a curriculum requiring students to take cutting-edge courses in the areas of molecular sciences, genomics, proteomics, quality assurance, biotech law, management and stem cell techniques, the applicant campus's students are assured of receiving excellent training.

For the training program in this emphasis, each year 10 MS Biotechnology students will be supported by CIRM for a total of 75 interns over 5 years. Because the team has well-established collaborative relationships with local biotechnology firms and research institutions, the instructors include not only academic faculty, but also senior scientists, professionals, and experienced business managers at local biotech companies. The applicant campus is committed to continuing this innovative public-private partnership in support of the MS Biotechnology program and the stem cell emphasis in particular. Through innovative programs embedded within the applicant campus's curriculum important career tracks are provided for students in the STEM disciplines with the potential to become one of the most successful and sustainable programs in the CSU system; a key contributor to fulfilling a critical need for highly qualified technical and managerial personnel in stem cell research technology.

Continuation of this training program will directly make a key contribution to the stem cell efforts supported by the people of California as evidenced by the applicant campus's interns' interest in pursuing future research in the stem cell areas either via seeking employment in the R & D sectors of stem cell based biotech companies or via applying to a PhD program. Our interns have spoken at community events held on our campus and increased the transparency of the SCTLM emphasis and CIRM funded research. This training program has gained tremendous popularity on the applicant campus in the past several years and future support will prove to be instrumental in recruiting the best students to augment the California scientific workforce.

Statement of Benefit to California: Students completing the stem cell emphasis in our MS Biotechnology degree will be qualified to pursue careers that require knowledge of state-of-the-art scientific principles and knowledge underlying advances in biotechnology along with legal and intellectual property issues. The program is not only comprehensive, but prepares the students to be effective managers in biotechnology-related companies, agencies and organizations by giving them the knowledge and skills needed to advance in science and business roles, thus directly benefiting the state of California in a variety of professions. Our Master of Science in Biotechnology and Master of Business Administration is an innovative dual degree program that blends key components of biological sciences and business at the graduate level. Students receiving training in the stem cell sciences and completing an MBA will directly contribute to the regional and national needs of a well-educated workforce in the stem cell technology industry which is subject to heavy layers of regulation.

The proposed program will enable us to provide extensive stem cell training to our students in world-class labs, allowing them to learn sophisticated stem cell techniques under the tutelage of experts and work on projects directly contributing to the study, treatment and potential cure of diseases. In addition to didactic training, students will receive opportunities to interact with health advocacy groups and patients, thus enabling them experience with the non-classroom component of the program. Students will be able to enhance the visibility of stem cell research and potential therapies via a variety of community outreach events, thus bridging the gap in the transfer of knowledge from lab to California citizenry. As a result of its rigor and quality, the training program will provide a highly rewarding scientific experience to our interns.

Since 2004, CIRM has handed out (as of June 2020) \$2.7 billion in grants to California scientists studying a variety of diseases, including diabetes, AIDS and leukemia. It has built several research facilities, funded more than 60 clinical trials and helped create more than 56,500 jobs in the state. The California workforce is directly benefited as a result of influx of skilled stem cell researchers in the market. This is a clear reflection of how a training program dedicated to students is capable of reaping big benefits. California is now home to the largest publicly available stem cell bank in the world and maintenance of these cell lines requires personnel who have received adequate and comprehensive training. These cell lines are valuable in understanding and modeling human diseases as well as in the areas of regenerative medicine. Students funded by the proposed training program will play a major role in enhancing California's image in the stem cell areas and educating the citizens about the promising potential of stem cells.

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